



Air Force Institute  
for  
Operational Health



U.S. AIR FORCE



# DoD-GEIS Influenza Surveillance and Response Program

*Information Only*

Defense Health Board

03 May 2007





# Background



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## ➤ DoD Global Influenza Surveillance Program

- DoD-GEIS Global, Laboratory-Based Influenza Surveillance Program
  - Sentinel site influenza surveillance
    - Managed at AFIOH, Brooks City-Base, TX
  - Population-based febrile respiratory illness surveillance
    - Managed at NHRC, San Diego, CA



# Surveillance Sites



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## ➤ Routine Surveillance

- Sentinel sites
  - 65 Global Sites

## ➤ Expansion efforts

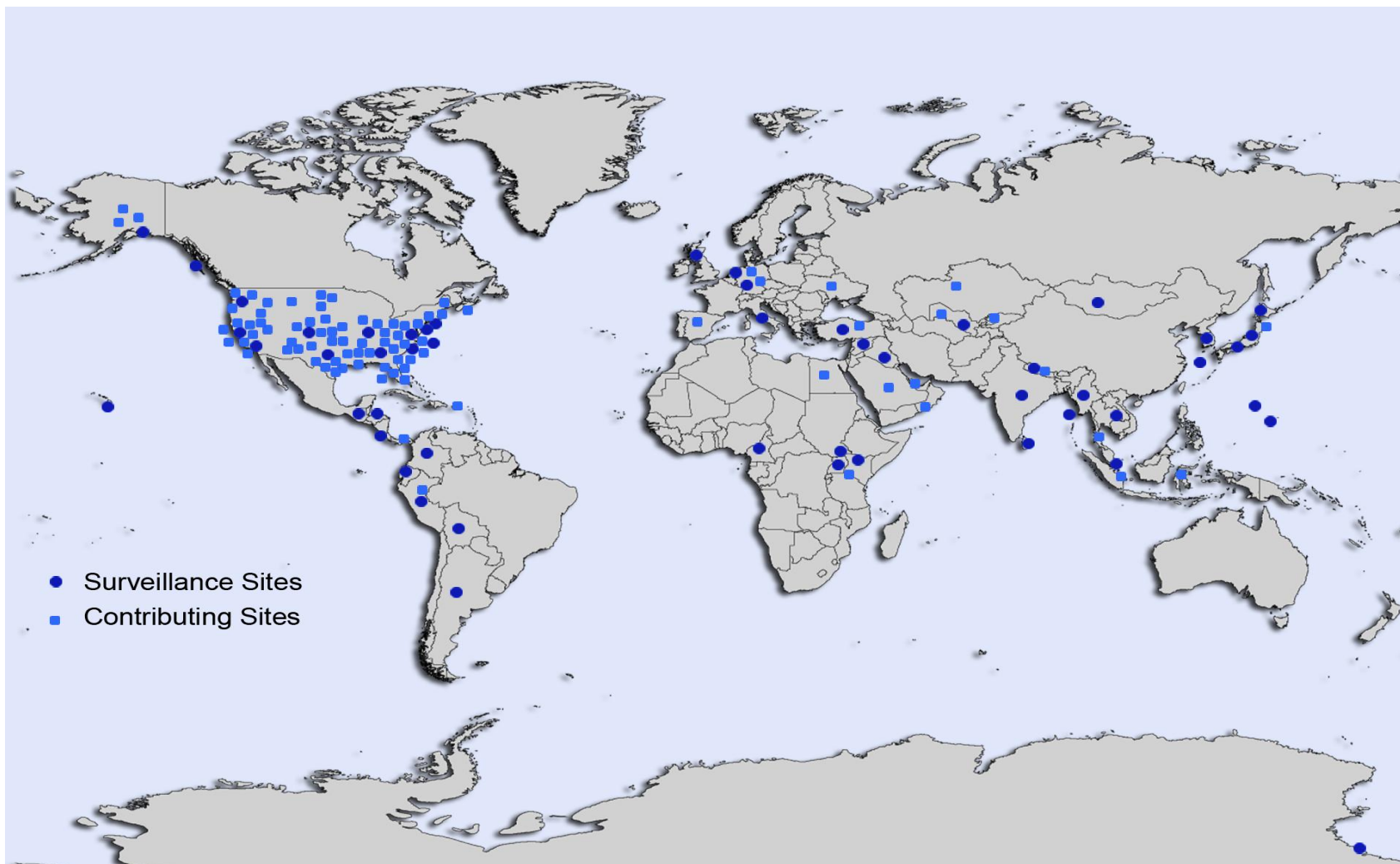
- Initial discussions for participation
- |              |          |
|--------------|----------|
| Hungary      | Israel   |
| Brazil       | Poland   |
| South Africa | Georgia  |
| Romania      | Bulgaria |



# Participation



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# Methods



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Public

## DoD Global Influenza Surveillance Program Surveillance at AFIOH

### Public Health QUICK SHEET for the Influenza Surveillance Program

1. Ensure all Primary Care Manager (clinic) teams are supplied with the "Influenza Surveillance Questionnaire" (<https://gumbo.brooks.af.mil/pestilence/influenza>).
2. Ensure Primary Care Manager (clinic) teams are supplied with collection kits (contact AFIOH lab: Ina Smith @ DSN 240-1680).
3. Pick up questionnaires weekly from Primary Care Manager teams.
4. Ensure 6-10 specimens meeting the ILI case definition are submitted each week. Do not submit specimens unless they meet the ILI case definition.
5. Enter all questionnaires online at (<https://gumbo.brooks.af.mil/pestilence/influenza>).
6. Enter all lab-confirmed positive influenza specimens into the service-specific Reportable Medical Events System (i.e., AFRESSII).
7. Recommend staff training at least 3 times/yr to ensure importance of influenza surveillance. A training presentation is available at <https://gumbo.brooks.af.mil/pestilence/influenza>.
8. Notify us at [influenza@brooks.af.mil](mailto:influenza@brooks.af.mil) if you suspect an influenza outbreak at your base. It is important that outbreaks among the military communities are tracked so threats to our military forces can be mitigated. If assistance is needed, we are happy to support you as needed-contact Angie Owens or Matt Johns at DSN 240-3471.
9. Contact us at any time!! (210) 536-3471; DSN 240-3471  
E-mail: [influenza@brooks.af.mil](mailto:influenza@brooks.af.mil)  
Website: <https://gumbo.brooks.af.mil/pestilence/influenza>

## DoD Global, Laboratory-Based Influenza Surveillance Program

### Program Overview



Air Force Institute for Operational Health  
(AFIOH)  
Brooks City-Base, TX



#### The Protocol for you

**When does flu surveillance occur?**  
Influenza surveillance in the DoD runs year-round, but is particularly keen to detect variations among locations and times of occurrence.

**When specimens are collected?**  
Only submit specimens from patients meeting the influenza-like illness (ILI) case definition.

**ILI Case Definition:**  
Fever  $\geq 100.3^{\circ}\text{F}/38^{\circ}\text{C}$  and/or muscle aches (AND) cough or sore throat of  $\geq 2$  no duration.

**How will I be notified?**  
AFIOH will automatically notify you positive influenza cases on a weekly basis for an appropriate public health response.



**What specimens are collected?**  
Only submit specimens from patients meeting the influenza-like illness (ILI) case definition.

**ILI Case Definition:**  
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**How will the PCM be notified?**  
The results will be reported in CHCS for use in patient management.

**What if I have questions?**  
If you have any questions, there is a 24-hour support line available for laboratory questions and ordering supplies.

**Do NOT freeze specimens in a laboratory freezer at  $-20^{\circ}\text{C}$ .**



#### What specimens are collected?

Only submit specimens from patients meeting the influenza-like illness (ILI) case definition.

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#### Be aware of the need for collection kits

Facilities should submit 4-10 specimens each week. Please email [afioh@brooks.af.mil](mailto:afioh@brooks.af.mil) for collection kits.

**Know how to properly ship the specimens.**  
Nasal swabs or nasals must be sent in viral transport medium on gel packs or iced packs.

Specimens meeting our laboratory within 4 days may be held at  $4^{\circ}\text{C}$ . If longer time is required, the media should ideally be frozen at  $-20^{\circ}\text{C}$  and only shipped on dry ice. If dry ice is not available, ship on gel packs.

**If there is a problem with shipping on dry ice, please contact us.**

**Do NOT freeze specimens in a laboratory freezer at  $-20^{\circ}\text{C}$ .**

**What if I have questions?**  
If you have any questions, there is a 24-hour support line available for laboratory questions and ordering supplies.



#### Shipping Address

AFIOH/CDR  
2730 Louisa Street Drive, Bldg 930  
Brooks City-Base TX 76235-5132

**OSN 240-8383 (210) 536-8383**

**Do NOT freeze specimens in a laboratory freezer at  $-20^{\circ}\text{C}$ .**

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# Methods



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OPERATIONAL HEALTH  
(AFIOH)  
BROOKS CITY-BASE, TX

## \*\*\*IMPORTANT\*\*\*

### Specimen Submission

\*\*\*5-10 specimens/week

### To Participate:

- 1) This questionnaire MUST be completed (in full) for each specimen submitted.
- 2) Patient MUST meet the influenza-like illness (ILI) case definition:

### ILI Case Definition

- Fever  $\geq 100.5^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ), oral or equivalent
- AND
- Cough and/or Sore Throat

### Questionnaire Submission

<http://gumbo.brooks.af.mil/pestilence/influenza>

- 1) This questionnaire should be entered and submitted online.
- 2) Additional questionnaires can be downloaded from the AFIOH Influenza website.
- 3) When ordering a test in CHCS, annotate in the Remarks section "Flu Surveillance".

Make a copy of this questionnaire for administrative purposes.

- To resolve discrepancy information
- For archiving results and entering them into the Reportable Medical Events System (RMES)

### Questions?

Please e-mail:

[influenza@brooks.af.mil](mailto:influenza@brooks.af.mil)

## DoD Global Influenza Surveillance Program

### Influenza Surveillance Questionnaire

Installation/DMS Code: **Fort Bliss** Date of Clinic Visit: \_\_\_\_\_

**PRIVACY ACT STATEMENT:** The social security number is required to facilitate documentation of health care received and patient follow-up. The privacy use of this information is to aid in preventive health and communicable disease control programs. The requested information is voluntary.

### Patient Information PLEASE PRINT LEGIBLY

Patient Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_

Last Name, First Name

DD-MMM-YYYY

Patient FMP/Sponsor SSN \_\_\_\_\_ Gender: Male/Female

FMP

Sponsor SSN

Sponsor's (military member) Work Phone (\_\_\_\_\_) \_\_\_\_\_ DSN #: \_\_\_\_\_

If taken at home, Highest Temp Recorded: \_\_\_\_\_ Date Taken: \_\_\_\_\_

DD-MMM-YYYY

**Symptoms:** Please select NA (Not Applicable) if the presence of symptoms cannot be determined.

Sore Throat: Yes / No / NA Cough: Yes / No / NA Vomiting: Yes / No / NA  
Chest Pain: Yes / No / NA Fatigue: Yes / No / NA Conjunctivitis: Yes / No / NA  
Headache: Yes / No / NA Chills: Yes / No / NA Ear Ache: Yes / No / NA  
Diarrhea: Yes / No / NA Body Aches: Yes / No / NA Stiffness: Yes / No / NA  
Dyspnea: Yes / No / NA Runny Nose: Yes / No / NA Sinus Congestion: Yes / No / NA

Did the patient travel recently (past 14 days)? Yes No Unknown

If YES, Where? \_\_\_\_\_ When? \_\_\_\_\_

City, State/Province, Country

Has the patient received the Influenza vaccine this season? Yes No Unknown

If YES, last date \_\_\_\_\_ Estimated Date: \_\_\_\_\_ & \_\_\_\_\_

DD-MMM-YYYY

Month

1st half or 2nd half of day

Type: \_\_\_\_\_ Injection (Flu Shot) \_\_\_\_\_ Nasal Spray (FluMist)

Location: \_\_\_\_\_ Military facility \_\_\_\_\_ Civilian facility

### Clinical Information PRINT LEGIBLY

Fever ( $\geq 100.5^{\circ}\text{F}$  /  $38^{\circ}\text{C}$ , oral or equivalent) Temperature = \_\_\_\_\_

AND (check the symptom/s) a. \_\_\_\_\_ Cough or b. \_\_\_\_\_ Sore throat ( $>72$  hours duration)

When did symptoms start? Date: \_\_\_\_\_

DD-MMM-YYYY

Hospitalized? Yes / No If YES, how long (hrs)? \_\_\_\_\_ Hospital Name? \_\_\_\_\_

Patient put on Quarters? Yes / No If YES, how long (hrs)? \_\_\_\_\_

Physician (name and number): \_\_\_\_\_ Name \_\_\_\_\_ Contact Phone Number \_\_\_\_\_

Name

Contact Phone Number

### Surveillance Information (to be completed by public health staff) PRINT LEGIBLY

\* Entered "Influenza Surveillance" in CHCS Remarks section? Yes / No

\* Questionnaire entered online (<http://gumbo.brooks.af.mil/pestilence/influenza>) date: \_\_\_\_\_

DD-MMM-YYYY

Keep questionnaires for assistance in entering information into service's "Reportable Medical Events System" (RMES).

## Nasal Wash-Procedural Guidelines

- 1.) Have patient blow their nose into a tissue to clear excess mucus.
- 2.) Tuck tip into patient's shirt collar.
- 3.) Uncap one-filled saline syringe and specimen collection container. Break the seal on the syringe by gently squeezing a small amount of saline into the tip of the hub.
- 4.) Have patient tilt their head back so they are able to look directly at the ceiling while they hold the specimen collection container up to their chin area.

Step 4-6



Step 7



- 5.) Encourage patient to not swallow saline by saying "Ka Ka Ka" while saline is squeezed into their nostril.
- 6.) Gently squeeze 5-6 mL of sterile saline into the patient's right nostril. Saline will drain back into the back of the nasopharynx.
- 7.) After a few seconds, have the patient lean their head forward so the saline will drain into the specimen collection container. Repeat for second nostril.
- 8.) Offer patient a facial tissue or have them use the tip to wipe away excess saline from their face.
- 10.) Place the contents with the Viral Transport Medium (VTM) included in the kit. Sending the rim of the cap will help in securing the contents into the VTM tube.

Step 10



Step 11



- 11.) Place specimen in the biohazard bag included in the kit and forward to laboratory for packaging and shipment to AFIOH. In order to maintain optimal quality for diagnostics, please be sure to read the specimen for immediate shipment.

### Storage, Packing and Shipping

**Specimen Stability:**

Refrigerated: Up to 4 days in VTM; ship on gel packs.  
Frozen  $-70^{\circ}\text{C}$ : Greater than 72 hours; ship on dry ice. Please contact AFIOH if dry ice is not available at your site.  
Frozen  $-40^{\circ}\text{C}$ : Not Acceptable  
Viral transport supplies may be ordered by emailing our Customer Service department at [gel.lab.help@brooks.af.mil](mailto:gel.lab.help@brooks.af.mil) or by calling 610-526-6275 (DSN: 540-6275).

Please ship to: FedEx number 1561-6385-0  
AFIOH/DC: 3736 Louisa Street Drive, Building 830  
San Antonio, TX 78225-5133

For additional packing and shipping details, please see the AFIOH/SDG Lab website:  
<http://www.afioh.af.mil/pestilence/influenza>

Please see the video demonstration at <http://www.airforcemedicine.afms.mil/flu>

For other information please see our website at:  
[www.afioh.af.mil/pestilence/influenza](http://www.afioh.af.mil/pestilence/influenza)

**Important-**  
For Military Treatment Facilities:  
Please remember to order  
"Respiratory Viral Culture (EPI)"  
in CHCS for respiratory surveillance.

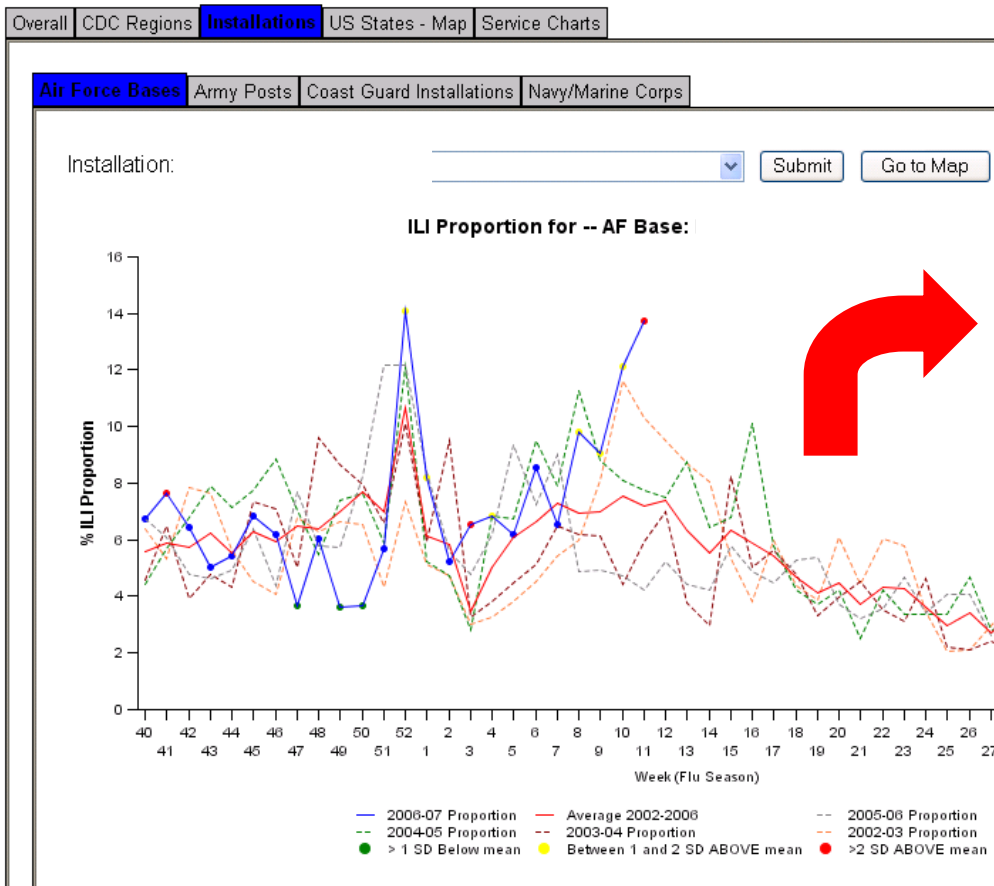




# Methods



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Good Morning,

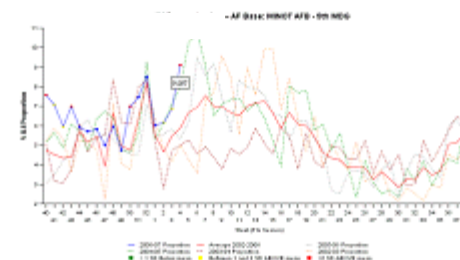
The DoD Global Influenza Surveillance Program at the Air Force Institute for Operational Health (AFIOH) reviews influenza-like illness (ILI) activity at US military sites each week. We noticed an increase in ILI activity at your site (see graph below). This is a significant increase that is notably higher than previous weeks. I understand it is currently the influenza season, but have you been made aware of any other factors that may be the cause for this spike? If so, please respond back to us within the next 8 hours.

**Possible action items in response to the spike:**

If your site experiences a respiratory spike such as this, we would appreciate if you could have your clinic/hospital staff:

- Contact the AFIOH laboratory at (210) 536-8383; DSN 240 for supplies and/or FedEx account number to ship specimens
- Collect a sample (6-10 per week) of specimens from patients meeting the ILI case definition (fever = 100.5°F and a cough or sore throat)
- Immediately ship to: AFIOH/SDE  
2730 Louis Bauer Drive, Bldg 930  
Brooks City-Base TX 78235-5132

This will help identify the agent if it is a respiratory outbreak and help to mitigate it as soon as possible. We test the specimens for a panel of respiratory viruses and report the results back to both the public health office (via electronic e-mail) and the provider (via CHCS). See the attached material for more information regarding our program. If you have any questions, you can contact us at [influenza@brooks.af.mil](mailto:influenza@brooks.af.mil).





# Methods



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## ➤ Routine Surveillance

- Educate
- Provide Supplies
- Monitor influenza-like illness (ILI)
- Routine communication
  - ILI status
  - Issues





Influenza A



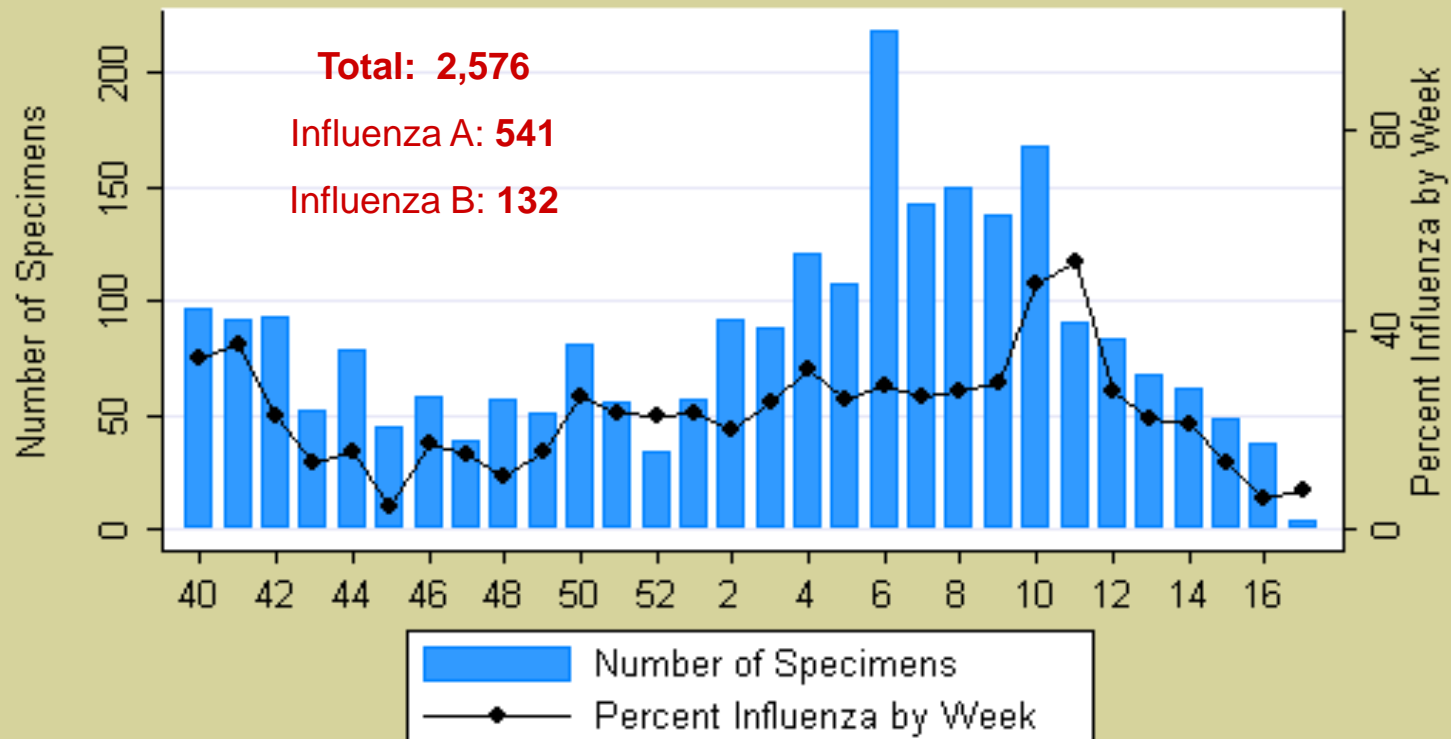


# Results



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Summary of Submitted Specimens  
All Sites by Week  
Influenza Season 2006-2007



As Of 27 Apr 2007

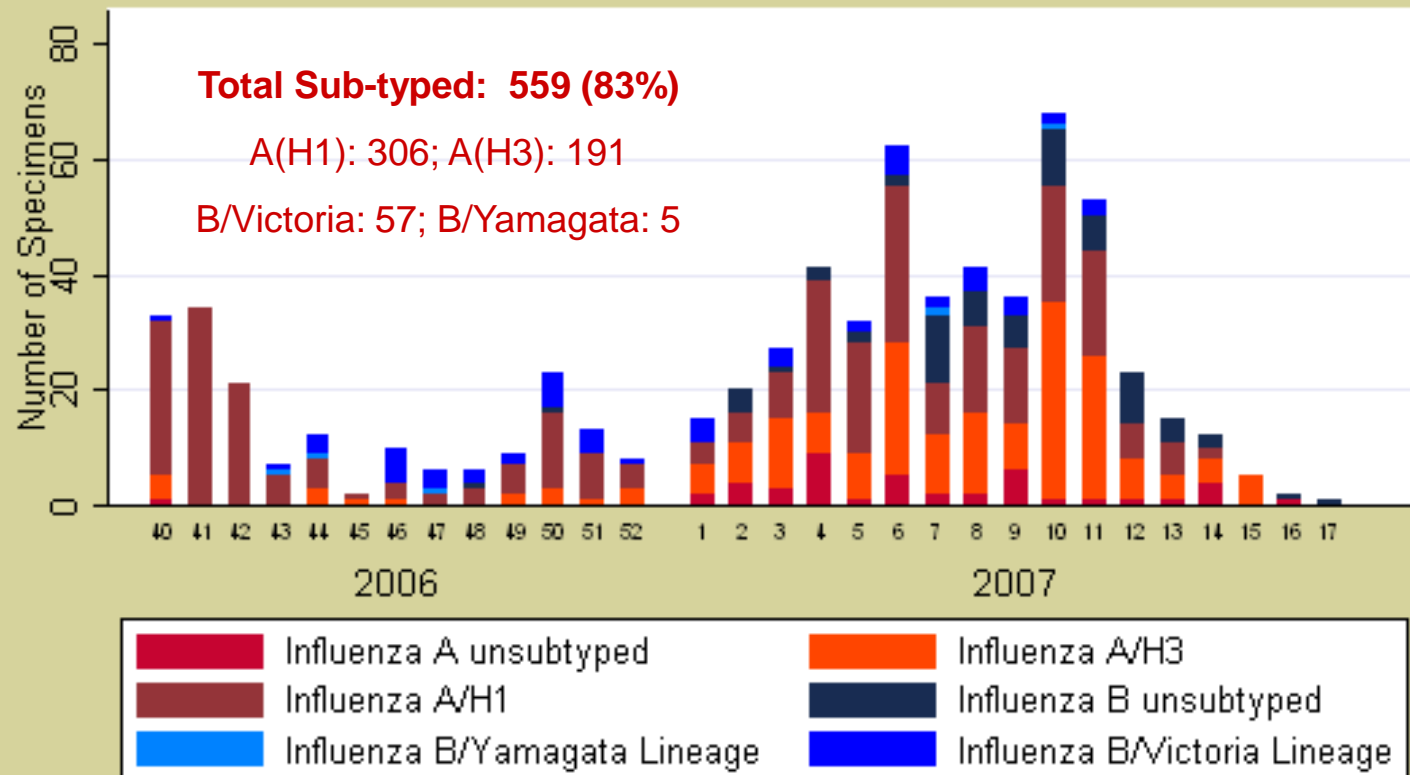


# Methods



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Subtyping Results by Week and Year  
Influenza Season 2006-2007



As Of 27 Apr 2007





# Products



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Department of Health and Human Services

Centers for Disease Control and Prevention

[CDC en Español](#)

Search:



## Influenza (Flu)

[Flu Activity](#) >

### Weekly Report: Influenza Summary Update

Week ending March 17, 2007-Week 11

#### Synopsis:

During week 11 (March 11 – March 17, 2007)\*, influenza activity continued to decrease in the United States. Data from the U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories indicated a decline in activity for the fifth consecutive week; 17.0% of specimens tested positive for influenza this week. ILI data was similar to the previous week and above baseline for the thirteenth week this season. Fifteen states reported widespread influenza activity; 22 states reported regional influenza activity; nine states, New York City, and the District of Columbia reported local influenza activity; and four states reported sporadic influenza activity. The reporting of widespread or regional influenza activity decreased from 42 for week 10 to 37 for week 11. The percent of deaths due to pneumonia and influenza remained below baseline level.

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[XML](#) [RSS feed](#)  
**NEW!**

#### Laboratory Surveillance\*:

During week 11, WHO and NREVSS laboratories reported 3,632 specimens tested for influenza viruses, 616 (17.0%) of which were positive: 62 influenza A (H1) viruses, 59 influenza A (H3) viruses, 271 influenza A viruses that were not subtyped, and 194 influenza B viruses.

Since October 1, 2005, WHO and NREVSS laboratories have tested a total of 137,755 specimens for influenza viruses and 18,246 (13.2%) were positive. Among the 18,246 influenza viruses, 14,795 (81.1%) were influenza A viruses and 3,451 (18.9%) were influenza B viruses. Four thousand two hundred forty

al



# Products



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**AIR FORCE INSTITUTE FOR OPERATIONAL HEALTH (AFIOH)**

**Influenza Threat Level:**  
WHO Phase 3  
Phase 3 Goal: Ensure rapid characterization of the new virus subtype, & early detection, notification & response to additional cases.

**Reference:** [WHO Pandemic \(2010\)](#)

**HP-H5N1 Geographic Location**

- No current evidence of HPAI H5N1 within North, Central, or South America.
- The current regional position includes much of Asia, the Middle East, Europe, and portions of Africa.

**Overall Lab Surveillance**

**Total Specimens Collected**

- Collected in Week 07: 53
- 06-07 Seasonal Year: 1,232

**Influenza patients by AGE**  
% of influenza isolates

**Percent of Total Flu**

0-5:	12% (n=36)
6-9:	22% (n=66)
10-18:	02% (n=06)
18-24:	06% (n=17)
25-44:	14% (n=42)
45-64:	04% (n=12)
65+:	03% (n=01)
Unk*:	40% (n=119)

\*Unknown gathered from non-DoD beneficiaries

**Influenza patients by FMP**  
% of influenza isolates

**Percent of Total Flu**

AD:	16% (n=50)
Spouse:	07% (n=22)
Child:	39% (n=122)
Non-DoD:	39% (n=122)

**Sentinel Site Surveillance**

**Specimens Collected**

- 867 specimens
- 70% of total specimens
- 231 influenza-positive
- 73% of total flu positives

**Contents**

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## DoD Global Influenza Surveillance Program: Influenza Surveillance at AFIOH

**Week 07 11-17 February 2007**

### Influenza (01 Oct - Present)

316 influenza isolates	<b>Influenza A</b>	<b>Influenza B</b>
266 Influenza A; 50 Influenza B	A (H1): 217	B (Yamagata): 2
	A (H3): 37	B (Victoria): 27
	A/not subtyped: 12	B/not subtyped: 21

26% of total specimens were positive for influenza: 84.2% influenza A; 15.8% influenza B

### Locations of Lab-confirmed Influenza

Legend: Influenza A, Influenza B, Both Influenza A/B

### Human Avian Influenza (H5N1) Update

CY 2007: 11 cases, 9 of 11 fatal, confirmed in Egypt, Indonesia, and Nigeria. Since CY 2003, 274 highly pathogenic (HP) H5N1 human cases (61% fatality rate) have been confirmed in Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Nigeria, Thailand, Turkey, and Viet Nam (19 Feb 2007, WHO).

Click on the following links for updates regarding human HP-H5N1.

- [World Health Organization \(WHO\)](#)
- [Centers for Disease Control and Prevention \(CDC\)](#)
- [Global Emerging Infections System \(GEIS\)](#)

### Influenza Outbreaks / News

- News:**
  - AFIOH and PACOM partners discussing increased surveillance capabilities during regional military exercises. AFIOH continues to support such activities with surveillance instruments, specimen collection/shipping supplies, and epidemiology support.
  - Storage of specimens prior to shipping: Remind staff to store specimens in a -70°C freezer or a regular refrigerator prior to shipping (-20°C is not acceptable). Ship at least twice weekly!

### AFIOH Report Overview

This report summarizes the status of all respiratory viral cultures processed at the AFIOH laboratory. For more background information, please see last page of this report.

**Page 5 DoD Global Influenza Surveillance Program: Influenza Surveillance at AFIOH**

### DoD Global Influenza Surveillance Program Background

This program was established by the Global Emerging Infections Surveillance and Response System (GEIS) in 1997. The surveillance network includes the Air Force (global influenza surveillance established in 1976), the Navy (recruit adenovirus Medical Research Unit Armed Forces Research Center Detachment [NMRC-airob, Kenya).

At the time of this report, 308 of the Based on the questionnaires.

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fluenza vaccine

(17 of 81) received the vaccine; us.

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**IAVY: Overall ILI Activity**

Question for - Week 07-08 WFLS

**IT GUARD: Overall ILI Activity**

Question for - Coast Guard - 08 WFLS

Results by Week and Year  
a Season 2006-2007

Results by Week and Year  
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**Page 4 DoD Global Influenza Surveillance Program: Influenza Surveillance at AFIOH**

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**Page 3 DoD Global Influenza Surveillance Program: Influenza Surveillance at AFIOH**

### Influenza-like Illness (ILI) Overview\*

ILI activity among overall DoD MTFs is currently >1 standard deviation (SD) below the mean for Week 07 (presented in Graph A). (Circular) If 1 activity across the Air Corps, Navy, Army, and Coast Guard are >1 SD below the mean. Note: at this time, updated weekly.

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**Page 2 DoD Global Influenza Surveillance Program: Influenza Surveillance at AFIOH**

### Overall Laboratory Surveillance at AFIOH

**Map: Locations of sites submitting respiratory specimens**

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# Products



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## Active Duty Influenza Immunization Status

Immunization Data collected by AFCITA

Data Status as of 23 Mar 2007 06:36

Notes: # Required counts the active duty AF personnel assigned to each base - excluding IMAs; If someone is both a student and in a GSU, they are counted only once in the student category; # Current only considers shots given on or after 1 July 2006

MAJCOM	Base	Regular					Student					GSU					Total				
		Req	Imm	Exempt	Nbr Curr	% Curr	Req	Imm	Exempt	Nbr Curr	% Curr	Req	Imm	Exempt	Nbr Curr	% Curr	Req	Imm	Exempt	Nbr Curr	% Curr
ACC	BARK	5,332	5,296	17	5,313	99.6%	207	201	1	202	97.6%	130	118	0	118	90.8%	5,669	5,615	18	5,633	99.4%
ACC	BEAL	3,225	3,180	8	3,188	98.9%	16	16	0	16	100.0%	9	3	0	3	33.3%	3,250	3,199	8	3,207	98.7%
ACC	CANN	2,839	2,802	7	2,809	98.9%	16	13	0	13	81.3%	7	0	0	0	0.0%	2,862	2,815	7	2,822	98.6%
ACC	DAVI	5,960	5,855	11	5,866	98.6%	72	69	0	69	95.8%	306	241	0	241	79.0%	6,327	6,165	11	6,176	97.6%
ACC	DYES	4,863	4,744	11	4,755	97.8%	83	74	0	74	89.2%	327	183	0	183	56.0%	5,273	5,001	11	5,012	95.1%
ACC	ELLS	3,027	2,970	3	2,973	98.2%	16	14	0	14	87.5%	0	0	0	0		3,043	2,984	3	2,987	98.2%
ACC	HOLL	3,243	3,187	9	3,196	98.6%	7	7	0	7	100.0%	65	54	0	54	83.1%	3,315	3,248	9	3,257	98.3%
ACC	LANG	8,072	7,832	30	7,862	97.4%	71	41	0	41	57.7%	453	212	1	213	47.0%	8,596	8,085	31	8,116	94.4%
ACC	MEAD	2,088	2,045	10	2,055	98.4%	40	40	0	40	100.0%	24	16	0	16	66.7%	2,152	2,101	10	2,111	98.1%
ACC	MINO	4,425	4,377	17	4,394	99.3%	13	13	0	13	100.0%	0	0	0	0		4,438	4,390	17	4,407	99.3%
ACC	MOOD	3,367	3,312	10	3,322	98.7%	54	43	0	43	79.6%	94	69	0	69	73.4%	3,515	3,424	10	3,434	97.7%
ACC	MOUN	4,068	3,988	12	4,000	98.3%	11	11	0	11	100.0%	25	8	0	8	32.0%	4,104	4,007	12	4,019	97.9%
ACC	NELL	7,057	6,833	20	6,853	97.1%	49	39	0	39	79.6%	1,003	941	4	945	94.2%	8,109	7,813	24	7,837	96.6%
ACC	OFFU	5,646	5,503	7	5,510	97.6%	337	307	0	307	91.1%	116	69	0	69	59.5%	6,099	5,879	7	5,886	96.5%
ACC	SEYM	4,050	3,944	9	3,953	97.6%	125	97	0	97	77.6%	46	22	0	22	47.8%	4,221	4,063	9	4,072	96.5%
ACC	SHAW	4,850	4,779	8	4,787	98.7%	102	76	0	76	74.5%	999	921	3	924	92.5%	5,951	5,776	11	5,787	97.2%
ACC	WHIT	3,232	3,224	3	3,227	99.8%	116	115	0	115	99.1%	50	48	0	48	96.0%	3,398	3,387	3	3,390	99.8%
		75,334	73,871	192	74,063	98.3%	1,335	1,176	1	1,177	88.2%	3,653	2,905	8	2,913	79.7%	80,322	77,952	201	78,153	97.3%
AETC	ALTU	1,470	1,445	13	1,458	99.2%	131	131	0	131	100.0%	4	3	0	3	75.0%	1,605	1,579	13	1,592	99.2%
AETC	COLU	845	829	11	840	99.4%	429	419	0	419	97.7%	147	104	1	105	71.4%	1,421	1,352	12	1,364	96.0%
AETC	GOOD	1,139	1,123	4	1,127	98.9%	715	690	1	691	96.6%	85	35	2	37	43.5%	1,939	1,848	7	1,855	95.7%
AETC	KEES	2,806	2,772	26	2,798	99.7%	1,415	1,383	1	1,384	97.8%	57	34	1	35	61.4%	4,278	4,189	28	4,217	98.6%
AETC	LACK	8,388	8,118	26	8,144	97.1%	2,663	2,349	0	2,349	88.2%	434	295	5	300	69.1%	11,485	10,762	31	10,793	94.0%
AETC	LAUC	853	844	1	845	99.1%	493	489	1	490	99.4%	0	0	0	0		1,346	1,333	2	1,335	99.2%



# Vaccine Coverage Overview



U.S. AIR FORCE

## ➤ Period of Review:

01 October 2006 – 13 April 2007

## ➤ Fully Vaccinated

Vaccination date >14 days prior to clinic visit date

- ♦ Patients with vaccination date prior to August classified as unvaccinated
- ♦ Vaccination data gathered from Defense Enrollment Eligibility Reporting System (DEERS) and Influenza surveillance questionnaire

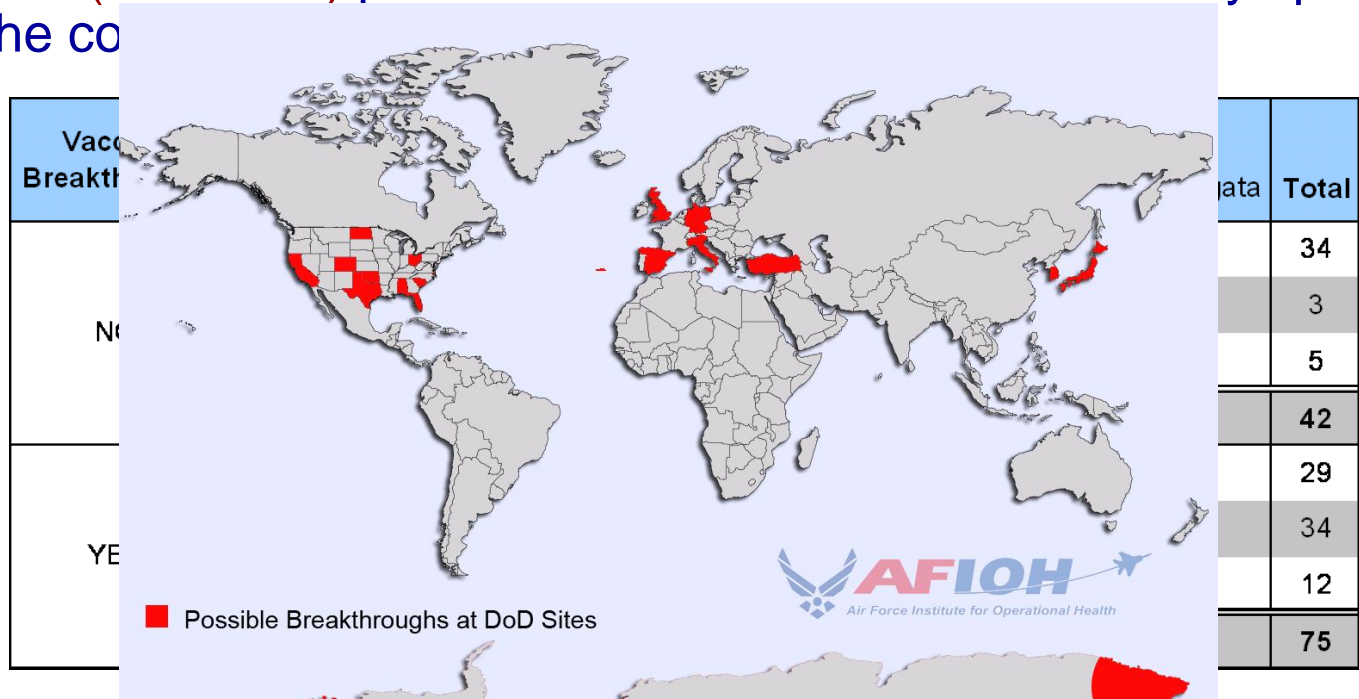


# Vaccine Coverage Overview



U.S. AIR FORCE

- Culture and/or PCR-confirmed influenza was observed in 19.4% (540 of 2,784) of the total respiratory samples submitted.
- Of these, 21.7% (117 of 540) had history of influenza vaccination during the 2006-2007 season.
- 64.1% (75 of 117) patients received the vaccine >14 days prior to the co



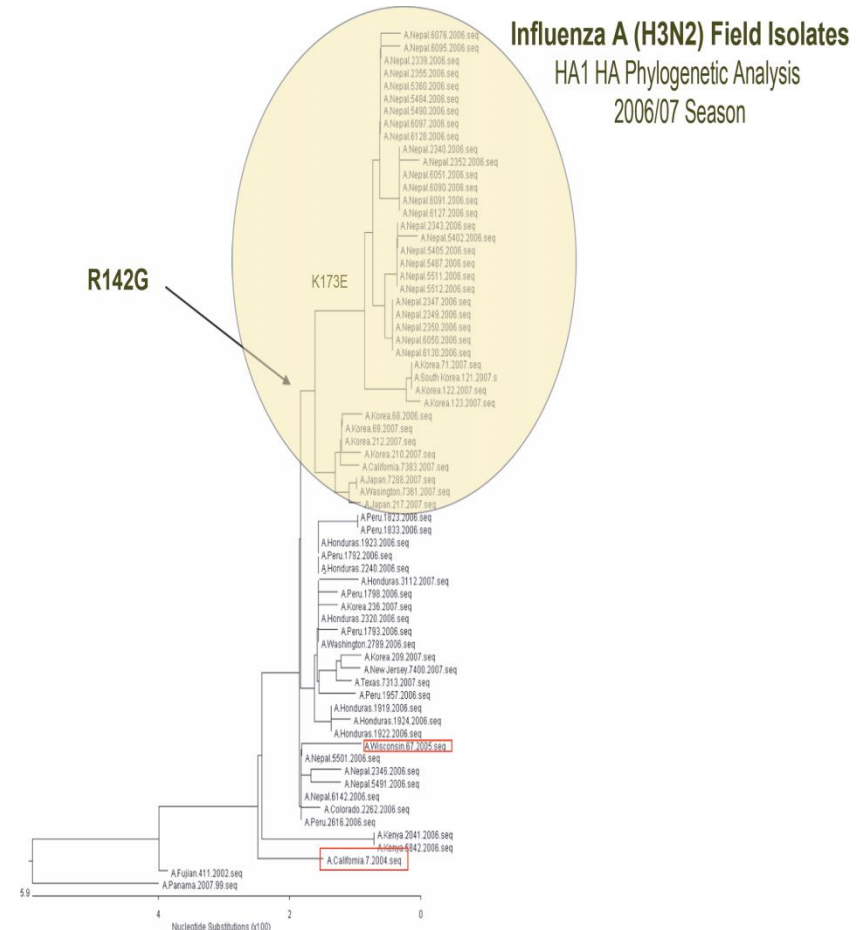


# Vaccine Coverage Overview



U.S. AIR FORCE

- Key influenza A/H3 isolates exhibited a R142G mutation, which has been characterized as a potential key contributor to the antigenicity of these strains.
- A small percentage of the isolates conferred mutations at several other of the reported antigenic sites.





# Vaccine Coverage Overview

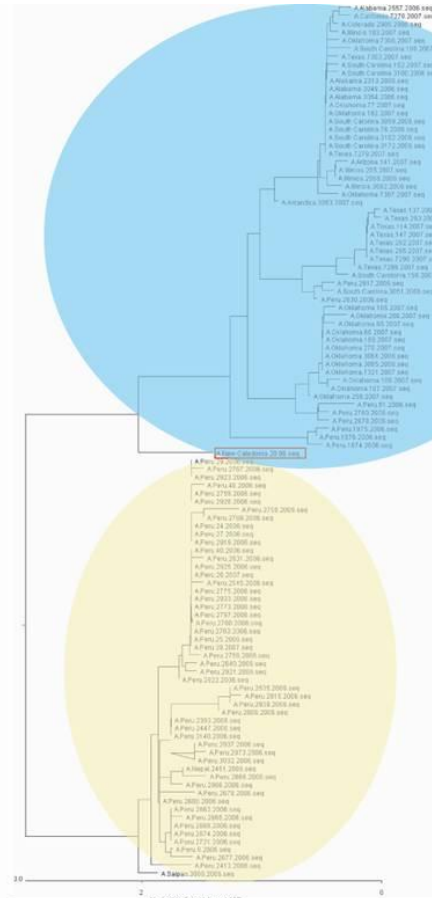


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Based on sequence analysis, a vast majority of the A/H1 isolates were homologous to the vaccine's New Caledonia component. However, there were a few divergent strains (Clade 2-like). Isolates from Clade 2 were obtained from CONUS.

CLADE 1

CLADE 2



Influenza A (H1N1) Field Isolates  
HA1 HA Phylogenetic Analysis  
2006/07 Season

Clade 1 isolates are from U.S. and Antarctica  
HA is genetically similar to A/New Caledonia  
vaccine strain (red box).





# Vaccine Coverage Overview



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- **Conclusions:**

Of patients participating in the DoD Influenza Surveillance Program, 64% who had a history of influenza vaccination contracted an influenza infection >14 days post-vaccination.

Numerous influenza A isolates appeared to show certain genetic changes.

These changes have been of interest to the Centers for Disease Control and Prevention, where further characterization showed reduced hemagglutinin inhibition titers in some isolates.



# Future



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## ➤ Molecular Characterization

- ✦ ID Tag (Luminex)
- ✦ Neuraminidase sequencing
  - ◆ Potential antiviral resistance characterization
- ✦ Hemagglutinin inhibition



# Collaborators



**U.S. AIR FORCE**



Global Emerging Infections Surveillance and Response System (GEIS)

Naval Health Research Center (NHRC)

Armed Forces Research Institute for Medical Sciences (AFRIMS)

Naval Medical Research Center-Detachment (NMRC-D)

US Army Medical Research Unit-Kenya (USAMRU-K)

Center for Health Promotion and Preventive Medicine-West (CHPPM-W)

Health Affairs

Combatant Commands (COCOM)

Military Surveillance sites

Centers for Disease Control and Prevention (CDC)

World Health Organization (WHO)



# AFIOH Contacts



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